The present paper seeks to amendment the specification and claims. Support for the amendments made herein can be found in Figures 2 and 3, and the last paragraph on the (unnumbered) page of Provisional Patent Application No. 60/155,802, filed September 27, 1999. Therefore, no new matter has been added.

Claims 1, 2, 5-14 and 22-25 are pending for the Examiner's consideration. No claims are added or cancelled by this paper.

Priority Claim

In the final Office Action, the Examiner indicates that a signed oath or declaration is required that mentions the provisional patent application (No. 60/155,802) from which priority is claimed. Applicant respectfully traverses this requirement.

35 U.S.C. § 119(e)(3) states that a non-provisional patent application will be given the benefit of the prior filing data of a provisional patent application "if it contains *or is amended to contain* a specific reference to the provisional application." (emphasis added). MPEP § 201.11 explains § 119(e) and lists "four conditions for receiving the benefit of an earlier filing data under . . . 35 U.S.C. 119(e):" (1) same invention disclosed; (2) co-pendancy; (3) common inventor; and (4) a reference in the non-provisional application to the provisional. None of those conditions include an oath or declaration listing the provisional patent application.

Applicant has met all the conditions required for claiming priority from the earlier provisional patent application, No. 60/155,802, under current patent practice. Therefore, Applicant believes that no new oath/declaration should be required.

35 U.S.C. § 112, first paragraph

In the outstanding final Office Action, the Examiner rejected claims 1, 2, 5-14 and 22-25 under 35 U.S.C. § 112, first paragraph, alleging that the disclosure does not enable one skilled in the art to practice the invention. Specifically, the Examiner indicates that it is "unclear how one with ordinary skill in the art would compute the input power from these look-up table values." (Paper No. 11, p. 3).

In response, the claims have been amended to more clearly state how the look-up table is created and used to compute a value for the input power based on other known variables. The claim amendments presented in this paper were previously presented in a draft amendment to Examiner West by Applicant's Attorney, Mr. Jim Lamb, Esq. The Examiner indicated to Mr. Lamb that these amendments would overcome the rejections raised under 35 U.S.C. § 112, first paragraph. Consequently, upon entry of the present amendment, the rejection under § 112, first paragraph should be withdrawn and the specification should be found to enable practice of the invention as claimed.

<u>35 U.S.C. § 101</u>

The Examiner also rejected the claimed invention under 35 U.S.C. § 101 based on the same issues discussed above with regard to the rejection under 35 U.S.C. § 112, namely that the invention as now claimed was not clearly described in the original specification. Consequently, the Examiner concluded that the claimed invention was inoperative and, therefore, lacked utility as required by § 101.

As above, the Examiner has considered the amendments offered in this paper, in draft form, with regard to the § 101 rejection. The Examiner indicated to Applicant's Attorney that the amendments proposed in the present paper would overcome the rejections under 35 U.S.C. § 101. Consequently, following entry of the present amendment, the rejection under 35 U.S.C. § 101 will also be overcome and should be withdrawn.

This resolves all the issues raised in the outstanding final rejection.

Entry and consideration of this amendment are proper under 37 C.F.R. § 1.116 for at least the following reasons. The present amendment makes only those changes necessary to place the application in condition for allowance as indicated by the Examiner in his interview with Applicant's Attorney, Jim Lamb, and his review of a proposed amendment presented by Mr. Lamb. As the Examiner has already considered the amendment with regard to the outstanding rejections, the amendment does not raise new issues requiring further search or consideration.

And, based on the indications of the Examiner, the present amendment clearly places the

application in condition for allowance. Therefore, entry of the present amendment is proper

under 37 C.F.R. § 116 and is hereby requested.

For the foregoing reasons, the present application is thought to be clearly in condition for

allowance. Accordingly, favorable reconsideration of the application in light of these remarks is

courteously solicited. If any fees are owed in connection with this paper which have not been

elsewhere authorized, authorization is hereby given to charge those fees to Deposit Account 18-

0013 in the name of Rader, Fishman & Grauer PLLC. If the Examiner has any comments or

suggestions which could place this application in even better form, the Examiner is requested to

telephone the undersigned attorney at the number listed below.

Respectfully submitted,

DATE: 23 January 2003

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Appendix: Amendments to Claims

For the convenience of the Examiner, and in accordance with 37 CFR 1.121(c)(1)(ii), all pending claims are presented below in their current form. Amendments made by the present paper are indicated with added material being underlined and deleted material being bracketed.

1.   (twice amended)   A method for estimating input power in a cable modem device having a tuner and a modem, the modem having a receiver including an automatic gain control (AGC) circuit with an integrator outputting an accumulated error value, the method comprising the steps of:

inputting a plurality of calibration signals having known frequencies and input power levels into the receiver;

recording calibration data corresponding to each of said plurality of signals, said calibration data including an associated frequency, input power level and accumulated error value for each of said calibration signals;

generating a look-up table comprising an interpolated accumulated error value for each of a desired set of estimated input power levels and input frequencies using said calibration data; and

storing the look-up table in the modem.

2.   (twice amended)   The method of claim 1, further comprising [estimating a] ~~obtaining an estimated input power using~~ a current input ~~frequency and an interpolated~~ [power using said look-up table and a current input frequency and current] accumulated error value ~~that~~ ~~is closest to a current accumulated error value as inputs to said look-up table~~.

5.   (twice amended)   The method of claim 1, ~~wherein generating a look-up table~~ ~~comprises~~ [further comprising] interpolating additional calibration data using calibration data taken from actual operation of said modem.

6.   (unchanged)   The method of claim 5, wherein the interpolating step is conducted using a first order equation.

7.   (unchanged)   The method of claim 5, wherein the interpolating step is conducted using a second order equation.

8.   (unchanged)   The method of claim 5, wherein the interpolating step is conducted using an audio tone.

9.   (unchanged)   The method of claim 5, wherein the interpolating step is conducted using a known voltage variable amplifier curve.

10.   (once amended)   The method of claim 1, further comprising extrapolating additional calibration data from the calibration data obtained from actual operation of said modem.

11.   (unchanged)   The method of claim 10, wherein the extrapolation step is conducted using linear projection from a localized amplitude corresponding to a selected calibration frequency.

12.   (unchanged)   The method of claim 11, wherein the extrapolation step is repeated for each calibration frequency.

13.   (once amended)   The method of claim 1, wherein generating said look-up table further comprises rendering said calibration data as 8-bit data.

14.   (once amended)   The method of claim 13, wherein generating said look-up table further comprises identifying a maximum value and a minimum value for frequency and input power level, wherein said maximum and minimum values are used to scale the 8-bit data.

22. (twice amended)   A cable modem device, comprising:

a tuner that tunes to an input signal;

a modem coupled to the tuner, the modem having a receiver with an automatic gain control (AGC) circuit and a memory; and

a look-up table stored in the memory, the look-up table comprising an interpolated accumulated error value for each of a desired set of estimated input power levels and input frequencies [containing calibration data associating an input power level, input frequency and accumulated error value for frequencies and power levels within an operating range of said modem];

wherein said look-up table is used to compute an estimated input power to the receiver using [based on] a current input frequency and an interpolated accumulated error value that is closest to a current accumulated error value.

23. (twice amended)   The cable modem device of claim 22, wherein [the calibration] data in said look-up table is stored in the memory as 8-bit data.

24. (twice amended)   The cable modem device of claim 23, wherein the memory also contains a maximum value and a minimum value for [the] input frequency and [the] input power level, wherein said maximum and minimum values are used to scale the 8-bit data.

25.   (once amended)   The cable modem device of claim 22, wherein said look-up table [calibration data] is generated from actual operation of said modem.

Appendix: Changes to Specification

For the convenience of the Examiner, and in accordance with 37 CFR 1.121(b)(1)(iii), all paragraphs that were replaced by the foregoing amendment are presented below in marked up form. Amendments made by the present paper are indicated with added material being underlined and deleted material being bracketed.

First full paragraph on page 8:

After all of the desired points have been generated from interpolating and extrapolating the calibration data, the resulting look-up table preferably contains one AGC integrator accumulator value data point for each amplitude and frequency value in the tuner's operating range. When a user wishes to measure the input RF power to the modem's receiver, the current AGC integrator accumulator value Ψ_{acc} is matched with the closest AGC integrator accumulator value Ψ_{acc} corresponding to the tuner's frequency from the look-up table and thereby used to obtain an estimate of the input power. Because the AGC integrator accumulator values in the look-up table are obtained via the modem's actual operating characteristics, the values in the look-up table will reflect and compensate for any variations in the particular device's characteristics, such as gain non-linearity, frequency ripple, or temperature effects, in the input power calculation.

Second full paragraph on page 9:

As a result, the inventive method does not require any input power calculations to be conducted in the digital modem itself. Instead, the invention uses AGC accumulator register values in a digital demodulator to estimate input

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RF power using a simple algorithm and a look-up table, using external test equipment to generate the look-up table data stored in the modem. The data in the look-up table is preferably generated externally by interpolating and/or extrapolating points from sparse calibration data and stored in the modem using a compact format (e.g., 8-bit data). During operation, the modem simply references the data corresponding to the input frequency and to the closest AGC integrator accumulator value in the look-up table to obtain an associated input power value. Because the AGC integrator accumulator values in the look-up table are interpolated from the actual, device-specific operating characteristics of the tuner in the cable modem device, the inventive method can compensate for gain non-linearity, frequency ripple and temperature effects often found in low-cost RF tuners by including data corresponding to these effects in the look-up table, without requiring an excessive number of calibration points to generate the look-up table data.